

CHAPTER 4

WATER CONSERVATION PROGRAM

4.1 OVERVIEW

Conservation in the IEUA service area is an important component of water resource management. Over the last five years, IEUA has implemented a variety of conservation programs and public educational approaches to encourage greater participation and awareness of the need for conservation with retail water agencies to meet their water management goals. With rapid urban growth in the IEUA service area, encouraging “smart” water efficient practices in new development is very cost effective. Conservation programs are also cost-effective because when viewed as a water supply option, it is one of the least expensive sources of new water.

4.2 COMMITMENT TO CONSERVATION

The IEUA is a signatory to the Memorandum of Understanding (MOU) regarding Urban Water Conservation in California and is a member of the California Urban Water Conservation Council (CUWCC). IEUA has made the 14 Best Management Practices (BMP's) the cornerstone of its conservation programs and a key element in the overall regional water resource management strategy for the region.

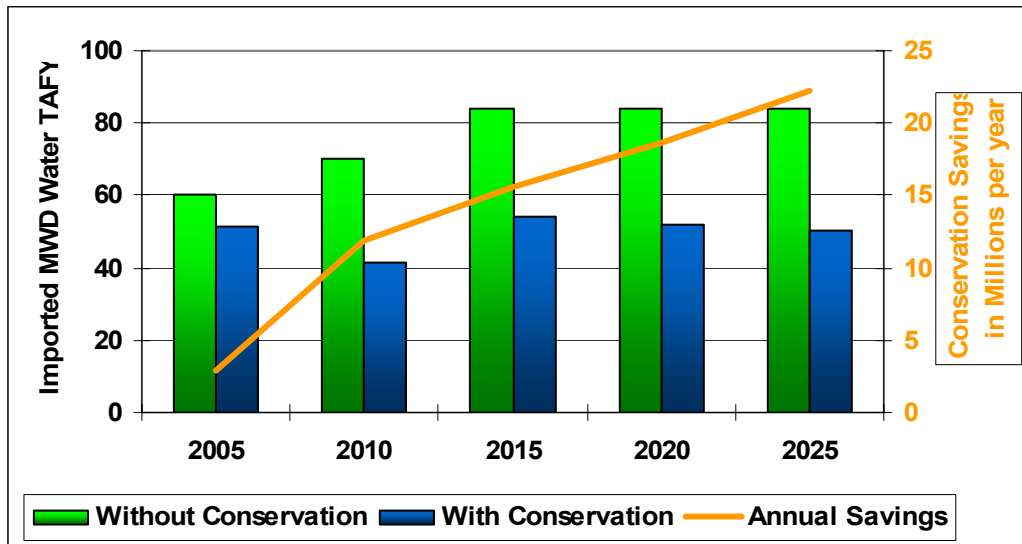
Members of the CUWCC are required to provide BMP “Activity Reports” every two years. These reports provide specific details of the agency’s efforts to implement each particular BMP. The BMPs are functionally equivalent to the Demand Management Measures (DMM) written in Water Code Section 10631 of the Urban Water Management Planning Act (Act). The Act requires an agency to describe each of the DMMs that have been implemented unless the agency is a signatory to the MOU. The Act allows an agency to provide the BMP Activity Report in-lieu of describing each of the DMMs. Therefore, IEUA has included its FY 2001-02 and 2003-04 BMP Activity Reports in Appendix B.

4.3 VALUE OF CONSERVATION

Over the last five years, IEUA and the regional retail water agencies have developed a strong partnership and a coordinated approach to conservation management measures that reduce water use. Conservation has multiple benefits, one of which is the value of conservation to the region’s ratepayers. Conservation saves money to the ratepayer.

Figure 4-1 quantifies the value of conservation to the region by comparing projected imported water purchases versus projected water conservation savings. Using conservation savings estimates for the next twenty years, the region can save an estimated \$300 million by reducing the amount of imported water purchased.

Figure 4-1
Avoided Tier II Costs Due to Conservation (Dry Year)



Source: Conservation projections from Table 2-4 & MWD's Long Range Finance Plan and MWD staff projections

IEUA provides water use demands without conservation estimates, by single-family, multi-family, commercial/industrial, and non-metered uses in Appendix V.

Overall, there are multiple benefits of conservation:

- Ratepayers save money on their water utility bills;
- Reduced wastewater flow at IEUA water recycled plants;
- Reduced urban runoff from improved irrigation efficiency;
- Avoidance of purchasing expensive imported water; and
- Environmental benefits (CALFED).

Another regional benefit for maintaining a strong support for conservation is the reduced dependence on imported water from the California Bay-Delta (Bay-Delta). The Bay-Delta is the single most important link in California's water supply system. Two major water supply projects, the State Water Project (SWP) and the Central Valley Project convey Bay-Delta water to more than 22 million Californians and 7 million acres of farmland. The IEUA service area receives a significant portion of its supply (about 30 percent) from the SWP via Metropolitan

Water District. Local water supply projects such as conservation help limit the amount of water taken out of the Bay-Delta for water supply, thus enhancing Bay-Delta water supply, water quality and environmental protection. Conservation also helps increase irrigation efficiency which reduces runoff and the associated damage to the asphalt of roads and parking lots that can be very expensive to repair.



Example of asphalt damage due to improperly operating irrigation system

Finally, conservation also benefits the region through energy savings. Whenever water moves from one point to another, energy is involved. Electricity to pump water is the single greatest use of power in the state amounting to about 19 percent of all power used in California. When water deliveries are reduced, significant energy is saved.

4.4 CONSERVATION OPPORTUNITIES

The Inland Empire is one of the fastest growth areas in the nation. In 2004, over 5,300 new single-family homes were constructed in the IEUA service area. This averages out to about 440 new homes per month.



In the IEUA Service Area, over 5,300 new homes were built in 2004

Inland Empire also means a generally warmer climate. As discussed in Chapter 1, the IEUA service area has an average annual temperature of about 80 degrees. Higher temperatures (as compared to a coastal environment) mean increased demand for water to stay cool. This includes swimming pools, water parks, cooling towers, etc. Warmer

temperatures also mean increased demand for landscape irrigation. Landscaping is one of the most important elements to making any building more attractive. There is a substantial dollar amount tied to maintaining the existing landscaping, therefore, property owners will have no issues about increasing

watering frequency, particularly during the hot summer months, to make sure their landscaping is well watered.

Core Strategies for Our Region

2005-2010 Water Conservation Strategy

There are five key elements to the 2005-2010 water conservation strategy within the Chino Basin:

- **Integrate conservation with other water management programs to maximize the overall water supply, water quality, flood control and environmental benefits to the region.**

Water conservation and IEUA's efforts to promote the use of recycled water should be an integrated message to all customers. Converting any existing use from drinking water to recycled water achieves the highest potential water conservation savings. In addition, conserving storm water at all properties reduces downstream flood problems and potential water quality issues but also may increase the percolation and recharge of Chino Groundwater Basin and thereby enhance the safe yield of the Basin. The conservation programs implemented in the next five years should feature multiple benefits and explicitly call out these benefits as part of the education message.

- **Encourage all new development to be more water and energy efficient.**

It is far more cost-effective to build efficiency into new development than to retrofit after construction. It is impressive how much even a modest reduction in per capita water demand of each new building can translate into significant avoided demand for costly imported water supplies. Since the majority of the region's new water demand will come from residential growth, making new development as water (and energy) efficient as possible is a key strategy for the future.

- **Promotion of California Friendly Landscapes in existing development.**

Agencies have begun to realize that the next significant amount of conserved water will be from improvements to existing irrigation systems and improved landscaping techniques. Regionally, Metropolitan Water District has introduced this concept as "California Friendly." Over the next five years, the region should pursue this and other related landscape efficiency concepts such as weather-based irrigation controller rebates, irrigation system survey and audits, homeowner landscape classes, recycled water (where feasible), healthy soils approach that includes compost use and turf reduction.

- **Continue residential appliance retrofit programs that target the most wasteful water using appliances and applications.**

Water wasting appliances and applications will be slowly phased out as old equipment is replaced with newer, more efficient models. The region can significantly increase the rate at which inefficient equipment and landscaping is replaced and by offering incentives for property and business owners, capturing the value of these savings sooner. Over the next five years, the region should prioritize and implement program that expedite replacement of the largest sources of wasted water within the Chino Basin.

- **Expand public education program and place an emphasis on development of partnerships with school districts to promote wise water use and how this contributes to the quality of life/economic sustainability of the region.**

Conservation is only effective when it is practiced. Changes in infrastructure and appliances help to prevent waste, but ultimately it is the water user's choice as to how much water is conserved. The regional education programs need to be designed to reach multiple constituencies, with a high priority placed on school programs for two reasons: 1) Young people are most effective at teaching their parents what needs to be done, and 2) these are the people who will be most impacted in the future by how well we manage our water resources today. Overall, the conservation message over the next five years should emphasize the creation of the public's role as partners with their local government in securing reliable, cost effective water supplies for the region.

Regional Conservation Potential

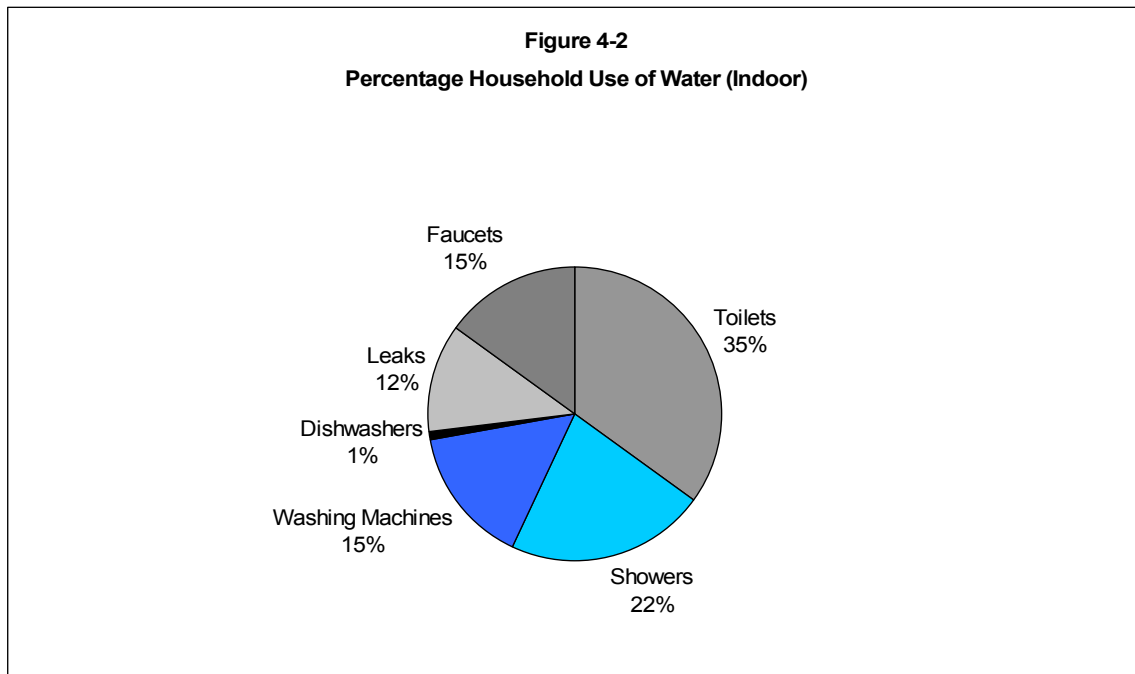
In November 2003, the Pacific Institute for Studies in Development, Environment and Security released a report entitled "Waste Not, Want Not: The Potential for Urban Water Conservation in California." The report was developed to show, for the first time, what the potential for water conservation could achieve. The Pacific Institute determined that current water use in the urban sector of California equaled amount 7 million acre feet each year. The maximum amount of water savings that could be achieved through the statewide implementation of indoor, outdoor, and CII programs using current technologies could equal between 2.0 and 2.3 million acre feet (AF).

IEUA staff followed this same methodology to estimating potential water conservation by adapting the analytical approach presented in the report to the IEUA service area. Staff did not attempt to break down the water savings potential by retail agency. Instead, the conclusion addresses the entire service area to provide an estimate of the potential water savings for the next five years.

Indoor Water Use

Figure 4-2 presents a look at where water is used throughout the household. These are the areas of significant household water use that were reviewed in the

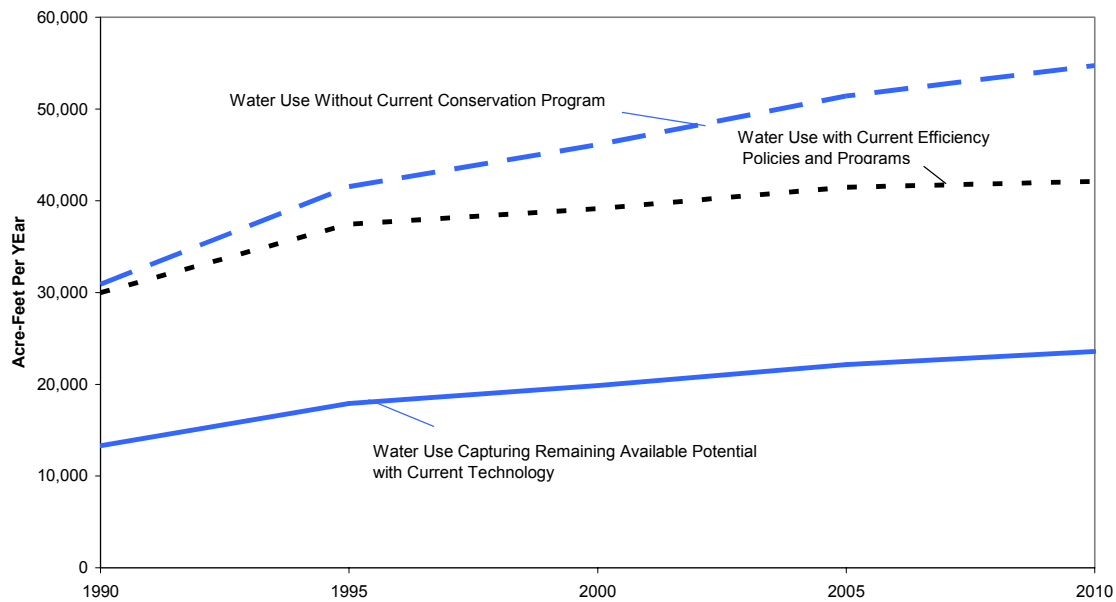
study and do not vary much throughout the state. As presented, toilets are the single most intensive use of water in the household followed by showers, washing machines and faucets. While not a household “use” of water, leaks still represent a significant portion of the overall indoor water use picture.



Source: All percentages of water use are from the Pacific Institute Report "Waste Not, Want Not"

Figure 4-3 shows that without any water conservation programs or policies, local or statewide, our service area would continue to see a growth in indoor water use to about 52,000 AF by 2010. The dotted line in Figure 4-3 shows that with current local and statewide policies, and the current conservation programs already in place in the IEUA service area, water use in the indoor sector is about 41,500 AF each year. If IEUA and the regional agencies were to adopt programs and policies, using current technologies, beyond what is currently being done, there is an additional 19,000 AF of water savings that could be captured.

Figure 4-3
IEUA Service Area Indoor Water Use 1990-2010 and the
Effect of Conservation Programs

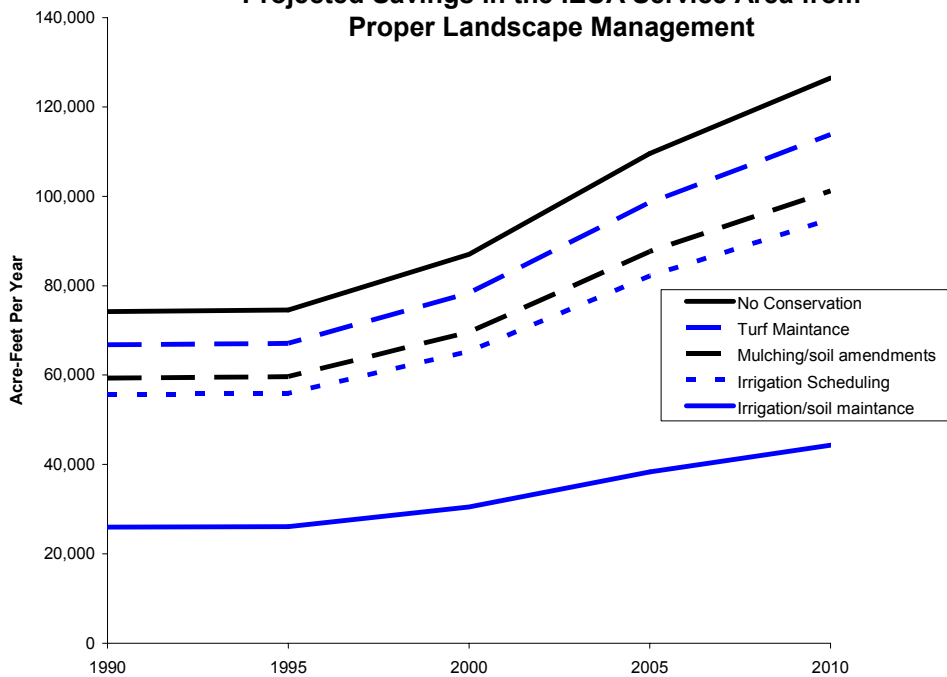


Outdoor Water Use

It is difficult to look at water conservation in the outdoor environment in the same manner as indoor water savings. The main reason is that there are many policies and design standards for indoor appliances and fixtures that do not exist for outdoor appliances and fixtures. Since the outdoor environment (referred to landscaping and irrigation) has not had the kind of water conservation attention that indoor appliances have had over the years, there really is no base year to start from. This assessment is based on current water use and provides examples of programs and procedures in a “what if?” scenario.

Figure 4-4 shows the projected water savings that could be achieved if the entire region had been involved in proper landscape management since 1990. The top line shows how much water is currently being used to irrigate our landscaped areas and what we can expect to use if no new outdoor conservation policies or programs are introduced over the next five years.

Figure 4-4
Projected Savings in the IEUA Service Area from
Proper Landscape Management



Source: Waste Not, Want Not: The Potential for Urban Water Conservation in California, The Pacific Institute, Nov. 2003

Although methods of proper landscape management show some promise in terms of water savings, by far the most significant presented is irrigation and soil maintenance. This involves checking for leaks, fixing broken heads, and fertilizing on a regular basis, something that most gardeners should be doing now, but probably are not. If all landscape maintenance personnel adopted this approach to maintenance, the potential savings could be as much as 80,000 AF each year.

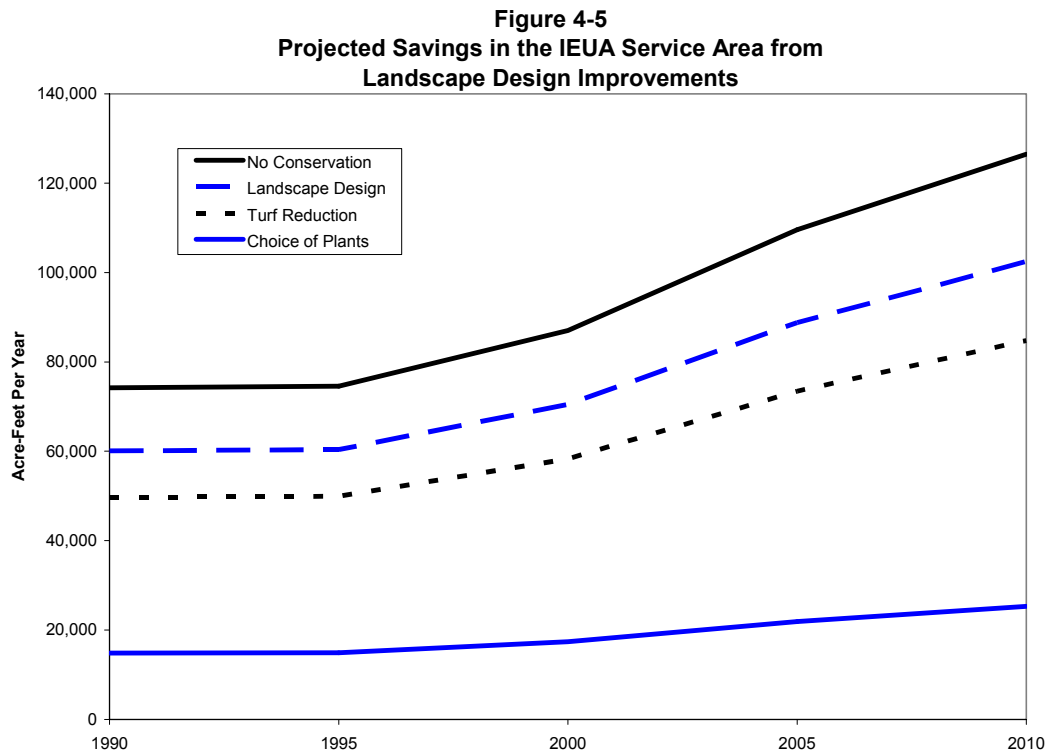
The total effect of water conservation programs represent significant savings if all policies and programs were in effect and were maximized to their potential. Unfortunately, to achieve these kinds of results across the entire menu of programs that could be implemented is unrealistic due to the limited financial resources available. The greater likelihood is that IEUA and the retail water agencies, after careful review and focusing attention on areas with highest cost-effectiveness, could capture a significant portion of these potential savings.

Core Conservation Goal

Based upon the analysis of the potential water conservation savings that could be achieved in both the indoor and the outdoor environments, IEUA strongly recommends an annual conservation goal of 10% of the total water used within the IEUA service area. In Fiscal Year 2010, the IEUA service area is estimated to use 263,000 acre-feet. This will set the conservation goal for 2010 at

approximately 26,000 acre-feet. Based on the analysis of potential water savings, a 10 percent goal is achievable within a five year period.

Figure 4-5 shows what could be achieved outdoors if IEUA and the regional agencies could encourage design improvements to all new and existing landscaping. Approximately 109,000 AF per year is being used to irrigate IEUA service area landscapes. In 2010, this number is expected to increase to over 126,000 AF. This is a 17,000 AF increase in just over 5 years.



Definitions:

Landscape Design – Involves controlling the area and perimeter of turf, minimizing narrow paths or steep areas that cannot be irrigated efficiently and grouping plants with similar irrigation needs.

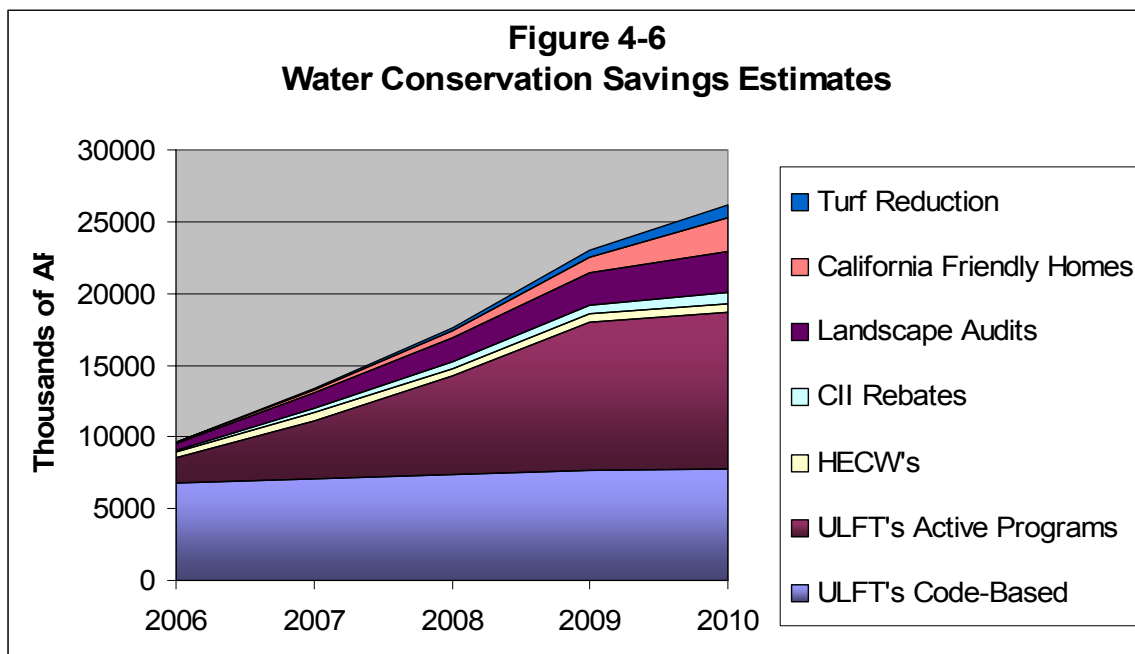
Turf Reduction – Non-turf areas are not necessarily comprised of low water using plants. Non-turf areas can include porous surfaces.

Choice of Plants – Savings based on ETo range of 0.2 to 1.0 and a current ETo of 1.0.

The top line in Figure 4-5 represents current water use and expectations for water demand through 2010. If proper landscape designs were instituted in existing landscapes in 1990, by 2005 the IEUA service could have water savings of about 24,000 AF per year. As growth occurs in the service area in new construction over the next twenty years, total water use in this area could increase significantly unless new design standards are in place. Although turf reduction could show even more savings, the choice of plants clearly shows the most significant savings. If all landscapes were using drought-tolerant or “California Friendly” type plants since 1990 and watering accordingly, by 2005 irrigation demand use could have been reduced by about 25,000 AF each year.

Clearly, if new homes are constructed to be more water efficient, a retrofit program becomes a mute point because water savings are captured before the first owner takes possession of the property. New home production is expected to increase by about 30,000 between 2005 and 2010. If all these new homes are constructed to “California Friendly” standards, the savings would be significant, about 4,800 AF.

To meet the goal, IEUA and the Regional Conservation Partnership will develop existing and new programs to reduce residential and commercial demand over the next five year period. Figure 4-6 provides series of programs that build upon one another year after year to reach well over 22,000 acre-feet of annual water savings. IEUA will continue with its current slate of indoor appliance incentive programs and aggressively pursue landscape programs such as residential and commercial landscape audits, develop a turf reduction incentive program, and promote new home water efficiency through MWD’s “California Friendly” programs.



To reach the goal of 22,000 acre-feet of water savings, IEUA will need to generate about \$1 million in local funding to support these regional programs.

Funding Goal

Currently, the IEUA regional conservation budget is about \$600,000. These revenues are collected with the support and cooperation of the local retail water agencies. The sources of revenues for the regional conservation budget:

- Imported Water Surcharge (Currently \$4/AF)

- Property Tax Revenue (Currently \$75,000)
- Retail Meter Revenues (Currently \$55,000)
- Regional Sewerage Revenues (Currently \$50,000)

These local funds are cost-shared with funding from our partner agencies such as the Metropolitan Water District of Southern California, the California Department of Water Resources, and the U.S. Bureau of Reclamation to develop a budget of well over \$1 million. Approximately \$2 of outside funding are developed for each \$1 of IEUA regional revenues.

In order to develop the regional conservation programs over the next five years as described above, IEUA proposes to more than double the budget of local funding to about \$1 million. Table 4-1 describes the local funding needs of the existing and proposed programs to meet the conservation goal. Note that the MF Direct Install program will be installing a total of 22,500 toilets over a three-year period and will have to be funding accordingly.

**Table 4-1
Minimum Annual Local Funding Needs**

Future Program	Annual Units	Estimated Local Funding Needed
Residential ULFT	5,000	\$30,000
MF Direct Install	5,000	\$200,000
CII Rebate Programs	Variable	\$100,000
Residential Landscape Audits	100	\$30,000
Commercial Landscape Audits	200	\$100,000
Turf Buy Back	Variable	\$50,000
CA Friendly Homes	500	\$350,000
Total		\$860,000

To reach \$1 million, IEUA proposes to increase the local funding to conservation through an increased share of property taxes that are already collected by IEUA. In addition, IEUA proposes to increase the amount of funds transferred to conservation from the Regional Sewerage Fund. Finally, IEUA proposes to increase the imported water surcharge to \$5 per acre-foot within the next year, then up to an additional \$3 per acre-foot over the next five years. When leveraged with funding from our partner agencies, IEUA should be able to create a regional budget of \$2 to \$2.5 million annually.

4.5 CONSERVATION PROGRAMS TO DATE

Over the last five years, IEUA and the regional retail water agencies have dramatically developed the conservation programs from a minimal ultra-low flush (ULF) toilet distribution program to a series of diverse residential, commercial, industrial, institutional (CII), and school education incentive programs. As

mentioned earlier, the cornerstone of IEUA's efforts over the last five years has been the development of programs that meet the requirements of the Memorandum of Understanding (MOU) regarding Urban Water Conservation Best Management Practices (BMP).

Implementing the BMPs

As one of the original signatories to the MOU in 1991, IEUA's highest conservation priority is seeing that good-faith efforts are being made to implement the BMP's locally. To accomplish this, IEUA formed the Water Conservation Partnership Workgroup. The Workgroup, made of representatives from each of the 8 local retail water agencies, is an advisory body that meets monthly to discuss the implementation of regional conservation programs, most of which are BMP related. The Workgroup ensures communication and coordination between the agencies to effectively implement the water conservation program.

2000-2005 Conservation Initiatives

In IEUA's 2000 Regional Urban Water Management Plan (UWMP), water conservation emerged as a significant water management tool in the IEUA service area. It was determined that the best way to meet the five-year conservation goal of 5,000 acre-feet was to "ramp-up" over several years. This would allow IEUA to expand the conservation programs without high up-front costs and achieve the long term desired water savings.

During this five year period, IEUA introduced a variety of new and innovative incentive programs to help achieve the conservation goal. The programs discussed below are summarized by retail water agency on page 4-18. These programs will reduce IEUA's demand on imported water sources, and will provide a drought-proof resource that is not subject to environmental restrictions and weather conditions.

The water conservation program has been divided into five categories; agency support, residential, commercial/industrial/institutional, landscape, and school education.

Agency Support

In 2003-04, IEUA began a program to provide financial assistance to each of the local retail agencies in an effort to support local BMP implementation. Specifically, IEUA provides an annual grant of \$2,000 to each agency for a BMP related program or project. This is part of IEUA's commitment to BMP #10 (Wholesaler Assistance Programs) where the wholesaler is required to provide financial and/or technical assistance to their local agencies to implement BMP's.

In 2004-05, three retail agencies used their grant monies to help fund the creation of a Groundwater Model to demonstrate the movement of water in the Chino Groundwater Basin. Other agencies have use the funding for a variety of other projects such as a Kid's Environmental Educational Day Festival, purchase of handout materials for the Chino Youth Museum, and expansion of school education programs.

Over the last two years IEUA has provided more than \$18,000 to local agencies for BMP related programs.

Residential

Active ULF Toilet Programs

The ULF Toilet Programs began in 1991 with a single residential toilet exchange event, and has blossomed over the past fourteen years. Particularly over the last 5 years with the introduction of a ULF toilet residential rebate program, a multi-family toilet exchange program, and a pilot multifamily direct-install program. Water savings associated with the more than 35,000 ULF toilets installed to date is equal to an estimated 1,800 acre-feet annually, and \$750,000 in avoided Tier II water purchases. These multi-beneficial toilet replacement programs help the retail water agencies meet their obligations under BMP #14.

Code Based ULF Toilet Programs

In addition to the active programs, IEUA can estimate the number of toilets that are replaced with ULF models without using the incentive based programs offered by IEUA and the retail water agencies. Conservation achieved through this methodology is referred to as code-based conservation. Since 1993, state law mandates that all toilets sold in California must flush no more than 1.6 gallons. It is estimated that between 1993 and 2004, over 153,000 toilets have been replaced with ULF models saving the local retail agencies over 6,000 acre-feet each year.¹

High Efficiency Clothes Washer Rebate

In 2002, IEUA and the local retail agencies introduced a High Efficiency Clothes Washer (HECW) Rebate Program. The program, conducted in conjunction with MWD, provides \$100 for the purchase and installation of a residential HECW. This program helps the regional water agencies meet their MOU obligations under BMP #6 which requires agencies to provide these types of incentive programs. To date, the program has provided over 4,800 rebates to residential customers. The water savings attributable to this program are estimated at 220 acre-feet annually.

Commercial – Industrial - Institutional

Within the IEUA service area, this category represents approximately 20% of the total water demand. Over the last five years, in cooperation with the local retail

¹ Assumes a 4% annual natural replacement rate.

agencies and the Metropolitan Water District, IEUA expanded its efforts in the Commercial/Industrial/Institutional (CII) sector by providing a rebate program for a menu of water using devices. These rebatable devices include ULF toilets and low-flow urinals, HECW's, cooling tower conductivity controllers, x-ray film processor recirculation units, pressurized water brooms, pre-rinse spray nozzles, and weather sensitive irrigation controllers. This program provides an important financial incentive to make it cost-effective for business and industry to participate in programs that reduce water use. For the local retail water agencies, this program helps them meet their MOU obligations under BMP #9.

Landscape

Over the last five years, irrigation technology has started to catch up with the water conservation needs of water agencies throughout California. Outdoor irrigation is the single largest water use for residential property owners and most commercial property owners. In California, landscape irrigation is about 50 percent of overall water use. In the IEUA service area, landscape irrigation demands are closer to 60 percent of a property's annual use.

Table 4-2 shows each of the 14 BMP's and breaks out those BMP's that are retail water agencies and/or wholesale water agency related.

**Table 4-2
List of Best Management Practices**

Retailer BMPs		Wholesaler BMPs	
BMP 1	Water Survey Programs For Single Family Residential and Multi-Family Residential Customers	BMP 3	System Water Audits
BMP 2	Residential Plumbing Retrofit	BMP 7	Public Information Programs
BMP 3	System Water Audits	BMP 8	School Education Programs
BMP 4	Metering with Commodity Rates For All New Connections and Retrofit of Existing Connections	BMP 10	Wholesale Agency Assistance Programs
BMP 5	Large Landscape Conservation Programs	BMP 11	Conservation Pricing
BMP 6	High Efficiency Clothes Washing Machine Financial Incentive Programs	BMP 12	Conservation Coordinator
BMP 7	Public Information Programs		
BMP 8	School Education Programs		
BMP 9	Conservation Program For Commercial, Industrial, and Institutional (CII) Accounts		
BMP 11	Conservation Pricing		
BMP 12	Conservation Coordinator		
BMP 13	Water Waste Prohibition		
BMP 14	Residential ULFT Replacement Programs		

With assistance from MWD, IEUA and the local retail water agencies began to offer regional and local classes for residents on landscaping efficiencies. IEUA participated with MWD on their “City Makeover” program to beautify city owned properties with California Native plant species. The City of Rancho Cucamonga and the Chino Basin Water Conservation District each won cash awards towards their projects. Also, IEUA has participated with MWD on its pilot program to promote landscape efficiencies in model homes. “The California Friendly Model Program” hopes to instill water use efficiencies in homes above current plumbing requirements.

Native Landscape Policy

In June 2003, the IEUA Board of Directors formally adopted a Native Landscape Policy. The policy states that IEUA will promote the use of native and drought tolerant plants. First and foremost, IEUA will serve as an example for the rest of the community by retrofitting our own facilities to use native plants whenever and wherever possible.

New technologies introduced in the last three years have opened the door to important funding opportunities such as MWD’s Pilot Weather Sensitive Irrigation Controller rebate program. IEUA and the local retail water agencies began a program in 2005 to provide rebates as an incentive to property owners to purchase and install a weather sensitive irrigation controller to help reduce chronic over watering.

These programs all help to provide support to the local retail water agencies to help them meet their MOU obligations under BMP #5.



IEUA HEADQUARTERS IN CHINO

Leading by example, IEUA’s Board of Directors approved the use of the LEED™ design criteria for its new headquarters to showcase how an integrated, sustainable designed building can create a better environment, conserve water and energy, improve productivity and contribute to the restoration of native landscapes.

School Education

In cooperation with its local agencies, IEUA expanded its efforts between 2000 and 2005 in promoting pilot conservation-related educational programs to grades K – 12. In 2002-03, IEUA began with a program to provide a magic show assembly that teaches water conservation oriented concepts to elementary level students. The program, “Think Earth; It’s Magic” followed up with an award winning curricula for each teacher and classroom called Think Earth.

The pilot program was instituted for two years and reached over 12,000 elementary level students. In 2004-05, IEUA and the local water agencies began a new program from the National Theatre for Children (NTC). The NTC group provides a live stage show that focuses on a water conservation theme. In the program’s first years, the stage show, “The Water Pirates of Neverland: Run Aground,” was seen at 49 schools and by more than 21,000 students. Next year’s program (FY 2005-06) will feature a new play but still continue the water conservation theme.



Butterfly Garden at Alta Loma Elementary School
in Rancho Cucamonga, a Project of Garden In Every School

In 2004, IEUA, in cooperation with the local retail water agencies, began a very unique program to provide “California Friendly” gardens to local elementary schools. The program, “A Garden In Every School” is an award winning program that brings professional expertise to teachers who want to use garden-based learning in their classrooms to teach science and conservation concepts.

With additional financial support from Lewis Operating Corporation and Kellogg’s Garden Products, the program also provides vegetable gardens for the students to learn basic gardening skills.

These programs all help to provide support to the local retail water agencies to help them meet their MOU obligations under BMP #7 and BMP #8 (School Education and Public Information).

Funding Sources

Funding sources for implementation of projects and programs to achieve the regional goals is a combination of IEUA revenues leveraged with outside funding

from MWD, DWR and Bureau of Reclamation. The 2000 UWMP adopted a funding strategy for the regional agencies that would have a minimal impact on each agency's budget, yet would provide an equitable flow of funding for the regional conservation programs. The revenues are set up to come from different sources so that no one or two large agencies would have to carry the burden for the entire region.

Since 2000, the number of individual revenue sources has increased. Below is a description of each of the funding sources:

- Imported Surcharge – IEUA agreed in 2000 to initiate a \$1 surcharge on each acre foot of imported water for water conservation. The surcharge is included on all classes of imported water (i.e., full service, conjunctive use, and replenishment). Currently, the surcharge is set at \$4 per acre foot for FY 2005-2006.
- Retail Meter Revenue – Metropolitan Water District (MWD) imposes a "Readiness to Serve Charge" on all member agencies to help pay for their CIP programs. To pay these fees to MWD, IEUA collects a charge for each residential and commercial meter in operation in the service area. IEUA attaches 2.5 cents per meter that flows directly to fund the conservation programs. Annually, this produces about \$55,000 in funding for the regional conservation programs.
- Property Tax – IEUA collects a property tax on each parcel in the service area to help pay for general fund and the regional sewage program. Exactly 1 cent of each 88 cents collected goes to conservation funding. Currently, this generates about \$75,000 in funding for the regional conservation program.
- Regional Sewerage Funding – Conservation programs can have a direct benefit on sewerage operations by reducing the overall volume of the wastewater flow. Therefore, the Regional Policy Committee (an advisory committee to IEUA made up of municipal and water district personnel) agreed to provide \$50,000 in funding to the regional conservation program since FY 2003-2004.
- Chino Basin Green – This \$100,000 is part of a \$300,000 grant from Lewis Operating Corporation to IEUA to establish a regional tree nursery and for support of regional landscape programs.

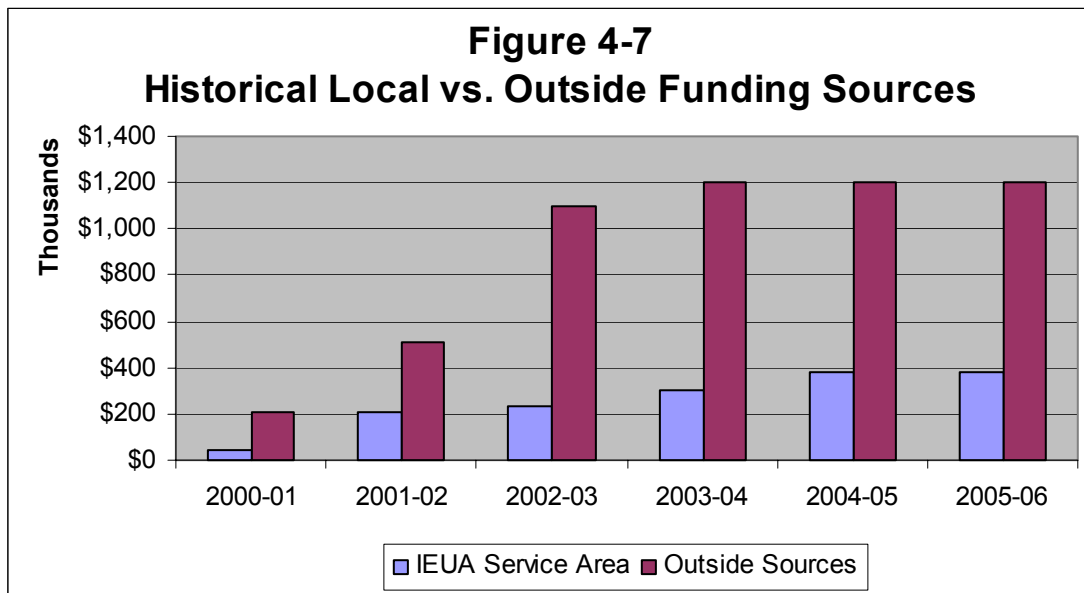
Table 4-3 is a description of the FY 2005-2006 budget for IEUA's regional conservation programs.

**Table 4-3
FY 2005/06 Regional Water Conservation Budget**

Program	IEUA Funding	MWD/Other Funding	2005/06 Budget Total
Large Landscape Audit Program <ul style="list-style-type: none"> Goal 150 CII Audits and 50 Residential Audits at estimated program cost of \$290/audit. Will offer MWD rebates and examine potential for additional rebates. Develop eligibility criteria for residential audits 	\$58,000	\$86,000	\$144,000
CII Program <ul style="list-style-type: none"> Goal: maximize Honeywell DMC/MWD rebates in service area Develop Marketing Strategy 	\$27,000	\$0 (MWD Rebates via DMC)	\$27,000
Toilet Programs Direct Rebate (2,000 toilets) (include dual flush rebate and offer residential showerheads/water survey) Single Day (1,000 toilets) Regional Exchange (1,600) Multi-Family Direct (3,200)	\$3,500 (1,800 x \$60) (200 DF x \$80) \$1,000 \$15,000 \$339,200	\$108,000 \$16,000 \$60,000 \$96,000 \$192,000	\$3,500 \$108,000 \$16,000 \$61,000 \$111,000 \$531,200
High Efficiency Clothes Washer 1,000 (Admin \$10)	\$0	\$110,000	\$110,000
Public Information Protector Del Agua (Link classes to residential audits. Reprint Education Materials Conservation Tips/Media	\$2,000 \$2,000 \$50,000		\$2,000 \$2,000 \$6,000 \$50,000
School Education Programs National Theatre for Children Garden In Every School <ul style="list-style-type: none"> Evaluate outside of IEUA Track participation level 	\$40,000 \$55,000		\$40,000 \$55,000
Retail Agency Assistance Programs CUWCC dues Chino Basin WCD BMP Support Grant WEWAC	\$11,000 \$1,000 \$2,000 \$1,500	10,000	\$11,000 \$1,000 \$2,000 \$1,500
Total	\$608,200	\$678,000	\$1,286,200

Figure 4-7 describes an example of local revenues and the ability to leverage those funds with outside funding. The regional conservation program has about \$600,000 to spend on program implementation. However, IEUA leverages these funds with rebate funding from the MWD and with state grants from DWR and the Bureau of Reclamation. In all, IEUA has an annual conservation budget that

exceeds \$1.2 million. To achieve water conservation goals outlined in this chapter, total annual spending will need to be increased to over \$2 million. Additional funding assistance will be sought from entities such as MWD, State Water Resources Control Board, DWR and the Bureau of Reclamation.



Accomplishments

Over the last five years, IEUA and its regional partners have introduced a variety of new conservation programs that have led to significant accomplishments in conservation. These new programs have consisted of incentive programs for homeowners and businesses, landscape efficiency programs and education programs. Most of these programs have been very successful; others were introduced as pilot programs or are just in the beginning stages on implementation. Below is a list of accomplishments by IEUA and the retail water agencies:

- In April 2001, IEUA and the retail agencies began an Ultra-Low Flush (ULF) toilet rebate program. This program has rebates the purchase and installation of over 2,300 ULF toilets.
- Beginning in 1992, IEUA and the retail agencies began a series of annual ULF toilet exchange programs. Through 2005, over 23,000 ULF toilets have been installed in single-family homes. These toilets are saving over 721 acre-feet of water each year.
- In 2001, IEUA and the retail agencies began a ULF toilet rebate program. To date, over 2,300 rebates have been issued saving over 72 acre-feet each year.

- Beginning in 2001, IEUA and the retail agencies have conducted a High-Efficiency Clothes Washer rebate program. Over 5,100 rebates were issued saving nearly 100 acre-feet each year.
- In 2003, IEUA and the retail agencies became the only water agency in California to offer rebates for Swimming Pool Covers. In all, over 600 rebates were issued. The swimming pool covers are estimated to save over 16 acre-feet year over the five-year life of the covers.
- In 2004, IEUA and the retail agencies began a region wide education program with the National Theatre for Children. The program includes live stage performances by trained actors at 50 elementary schools each year. To date, over 21,000 students saw the water education, water-conservation based productions.
- IEUA began a program to construct native landscape gardens in elementary schools. "A Garden in Every School" program includes garden-based curriculum that teachers use to teach various science concepts. In 2005, the first year of the program, IEUA planted 7 gardens at 7 schools.
- Through a Proposition 13 grant from the California Department of Water Resources, IEUA placed 11 X-Ray Film recirculation devices at hospitals and diagnostic centers that reduces water use by 96 percent on each film processor saving over 33 acre-feet each year.
- In 2003, IEUA and the retail agencies began a series of residential landscape classes. Many of the agencies hosted classes for their own customers and residents while IEUA hosted regional classes for all residents in the service area.
- IEUA has continued to participate in WEWAC (Water Education Water Awareness Committee). Since 1989, WEWAC has promoted school education through teacher and student grants on a variety of water based subjects. IEUA participates with 12 other water agencies in San Bernardino County and Los Angeles County.
- In June 2005, IEUA was awarded \$1.7 million for Proposition 50 Water Efficiency grant. This grant, provided by the California Department of Water Resources, gives IEUA the ability to install over 22,000 ultra-low flush toilets in multi-family properties throughout the service area over a three year period.

The retail agencies not participate in conservation program at the regional level but some agencies have their own events and programs as well. Below is a list of the participating programs for each of the eight retail water agencies in the IEUA service area.



City of Chino

- Ultra-Low Flush (ULF) Toilet Exchange
- ULF Toilet Rebate
- High Efficiency Clothes Washer (HECW) Rebate
- National Theatre for Children
- Commercial/Industrial/Institutional (CII) Rebate (Save-A-Buck)
- Garden In Every School
- Landscape Water Audits
- Water Awareness Water Education Committee (WEWAC)



City of Chino Hills

- Edible Aquifer School Program
- Metropolitan Water District's (MWD) Solar Cup
- School Poster Contest
- WEWAC
- ULF Toilet Exchange
- ULF Toilet Rebate
- HECW Rebate
- National Theatre for Children
- CII Rebate (Save-A-Buck)
- Garden In Every School
- Landscape Water Audits
- Residential Landscape Classes



Cucamonga Valley Water District

- MWD's Solar Cup

- Kids Environmental Festival
- WEWAC
- Teacher Workshops
- ULF Toilet Exchange
- ULF Toilet Rebate
- HECW Rebate
- National Theatre for Children
- Commercial/Industrial/Institutional (CII) Rebate (Save-A-Buck)
- Garden In Every School
- Landscape Water Audits
- Residential Landscape Classes

Fontana Water Company



- ULF Toilet Exchange
- ULF Toilet Rebate
- HECW Rebate
- CII Rebate (Save-A-Buck)
- Garden In Every School

Monte Vista Water District



- School Poster Contest
- Speakers Bureau
- WEWAC
- ULF Toilet Exchange
- ULF Toilet Rebate
- HECW Rebate
- National Theatre for Children
- CII Rebate (Save-A-Buck)
- Garden In Every School
- Landscape Water Audits
- Residential Landscape Classes



City of Ontario

- WEWAC
- Ontario Cares
- ULF Toilet Exchange
- ULF Toilet Rebate
- HECW Rebate
- National Theatre for Children
- CII Rebate (Save-A-Buck)
- Garden In Every School
- Landscape Water Audits



City of Upland

- WEWAC
- ULF Toilet Exchange
- ULF Toilet Rebate
- HECW Rebate
- National Theatre for Children
- CII Rebate (Save-A-Buck)
- Garden In Every School
- Landscape Water Audits



San Antonio Water Company

- ULF Toilet Rebate
- ULF toilet Exchange
- CII Rebate (Save-A-Buck)
- Landscape Water Audits

4.6 CONSERVATION PROGRAMS 2005-2025

The IEUA will continuously develop new conservation programs over the next twenty years. Developing technology, opportunities, and funding will dictate the direction of these programs. However, the foundation for future conservation programs will be based upon the work that started in 2001 and the investigative work over the next five years.

Objectives

As mentioned in section 4.4, IEUA has identified five core strategies it will pursue over the next five years. This will be a transitional period where conservation programs will be fully integrated into IEUA's other water management programs. Below is a list of the objectives for each of the core strategies:

Integrate Water Conservation with other Water Management Programs

- Integrate water conservation with recycled water through large landscape audit programs by identifying potential customers.
- Integrate water conservation with organics management by promoting the "Healthy Soils" concept for all landscapes in the IEUA service area.
- Integrate water conservation with salinity management by promoting the water quality benefits of reduced salt in the wastewater stream.
- Integrate water conservation with flood control and groundwater management by promoting methods to increase on-site storm water retention.

Water Efficiency in New Development

- Integrate water efficiency with the "California Friendly" concept by encouraging developers to construct all new homes with water conserving landscaping and irrigation equipment.
- Integrate energy efficiency with the "California Friendly" concept by encouraging developers to install indoor appliances that use the highest efficiency standards.
- Promote incentives to new homeowners to develop their backyards using weather-based irrigation controllers and water efficient landscape design criteria.

Promotion of “California Friendly” in Existing Development

- Integrate the California Friendly concept through a regional landscape water audit program.
- Integrate the California Friendly concept through promotion of residential landscape audit classes.
- Integrate the California Friendly concept through promotion of the commercial and residential weather-based irrigation controller rebate program.
- Develop an award program, with Metropolitan Water District, for properties that become “California Friendly”.

Continue Residential Appliance Retrofit Programs

- Continue ultra-low flush (ULF) toilet rebates while transitioning to incentive programs for dual-flush toilets and high efficiency toilets (HET).
- Continue with rebates for residential high-efficiency clothes washers (HECW) until formal standards are adopted by the state.
- Continue to offer rebates for weather based irrigation controllers.

Expand Public Education Programs

- Continue to develop and offer incentives to schools for participation in the “Garden In Every School” program to promote garden based learning.
- Continue to offer the National Theatre for Children program for up to 50 elementary schools annually in the IEUA service area.
- Develop partnerships with school districts to help them promote water and energy efficiency to school children as well as resource management concepts that include recycled water, healthy soils, and the importance of water quality.

Research and Development

Over the next five years, IEUA will research the water conservation potential of programs that may have been started on a pilot basis in other areas of the state, but have not yet been fully implemented. These types of programs and concepts will be related to the BMP’s. During the research phase, some of the questions that need to be explored are as follows:

- Where has this program been implemented?
- What area are the projected water savings?
- What are the costs compared to the benefits?
- What resources are necessary for implementation?

Below is a description of types of programs that will be studied over the next five years. Implementation of these programs, if found to be feasible, will over the next five to ten years.

➤ **Rebates for Residential/Commercial Irrigation System Improvements** – It is well understood that an irrigation system which has not been maintained will not function as well as one that has been properly maintained. IEUA will investigate the possibility of a rebate program for property owners who wish to improve or upgrade their irrigation systems.

➤ **Turf Removal** – Turf removal and landscape replacement programs are becoming more popular among residents of Southern California, replacing a high water demanding landscape with more efficient landscape means. An example where this has been successful in Las Vegas, Nevada. In a very aggressive effort to reduce irrigation water use, the Southern Nevada Water Authority (SNWA) provides a rebate of \$1 per square foot of turf removed and is replaced with low water-using landscapes. The SNWA has replaced over 34 million square feet of turf. In 2004, SNWA spent \$28 million on this program. Through a joint 5-year study with the U.S. Department of the Interior, the SNWA determined a water savings rate of 55 gallons per square foot annually. This is about 5,700 acre-feet of savings each year. IEUA will investigate the potential for removing turf in favor of low or zero water using landscape.

➤ **Artificial Turf Replacement** – Living turf removal in favor of artificial turf has already begun in parts of Southern California, including specific sites in the Chino Basin (Upland High School football field). The advantage of such of a



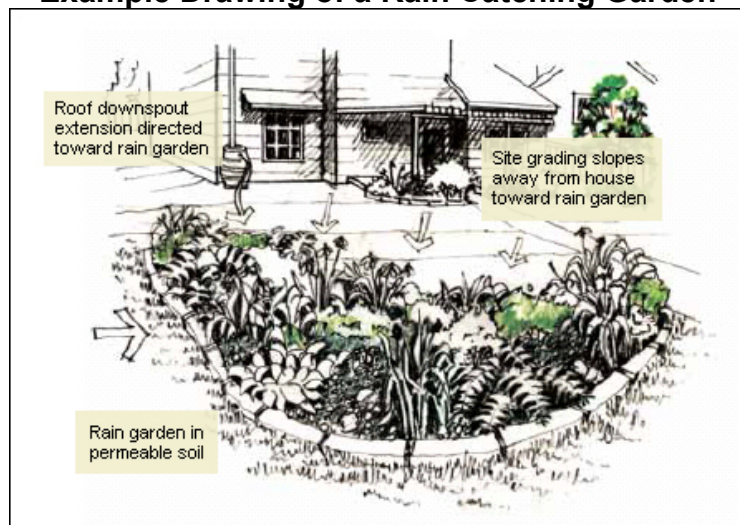
Example of a home using artificial turf

landscape to the property owner is not only the water savings, but the maintenance savings as well. The costs of a retrofit can be quite high, up to \$10 per square foot. However, as these types of landscapes become more popular, the costs will likely begin to fall. IEUA will investigate the viability of a rebate program for homeowners

and commercial property owners.

- **Technical Assistance Programs** - As part of BMP #10 (Wholesale Agency Assistance), IEUA is required to provide technical and/or financial assistance to the retail water agencies to help them implement the BMPs. IEUA is already offering this type of assistance currently, but will review other areas we can expand to such as Rate Structure assistance and local legislative assistance such as Retrofit-Upon-Resale ordinances.
- **Expand School Education Program to Include a Home Water Audit Component** - As already mentioned in school education, children can be a powerful tool in convincing their parents to be more resources efficiency minded. IEUA will look at the possibility of expanding the National Theatre for Children school education program to include a home water survey/audit component. After viewing the live action performance, students (fifth grade or higher) could be provided the materials to conduct a home water audit at their own home and enter the data on a special secure website. The data could be used to market directly to parents about the existence of rebates or other incentives they may not be aware or have not yet taken advantage of. IEUA will explore this with the National Theatre for Children staff.
- **Rain Catching Gardens** - As the Chino Basin continues to urbanize, more and more properties are creating more runoff of storm water that would have simply infiltrated into the ground and ultimately percolated into the Chino Groundwater Basin. As shown in Figure 4-8, a rain garden is a shallow depression in your yard that is planted with native flowers & grasses and is positioned in the yard to receive runoff from your roof, sidewalks, driveway and lawns allowing water to slowly soak into the ground. Residential and commercial property owners should be encouraged and/or incentivised to create this type of landscape that allows water to naturally percolate into the Chino Groundwater Basin.

Figure 4-8
Example Drawing of a Rain Catching Garden



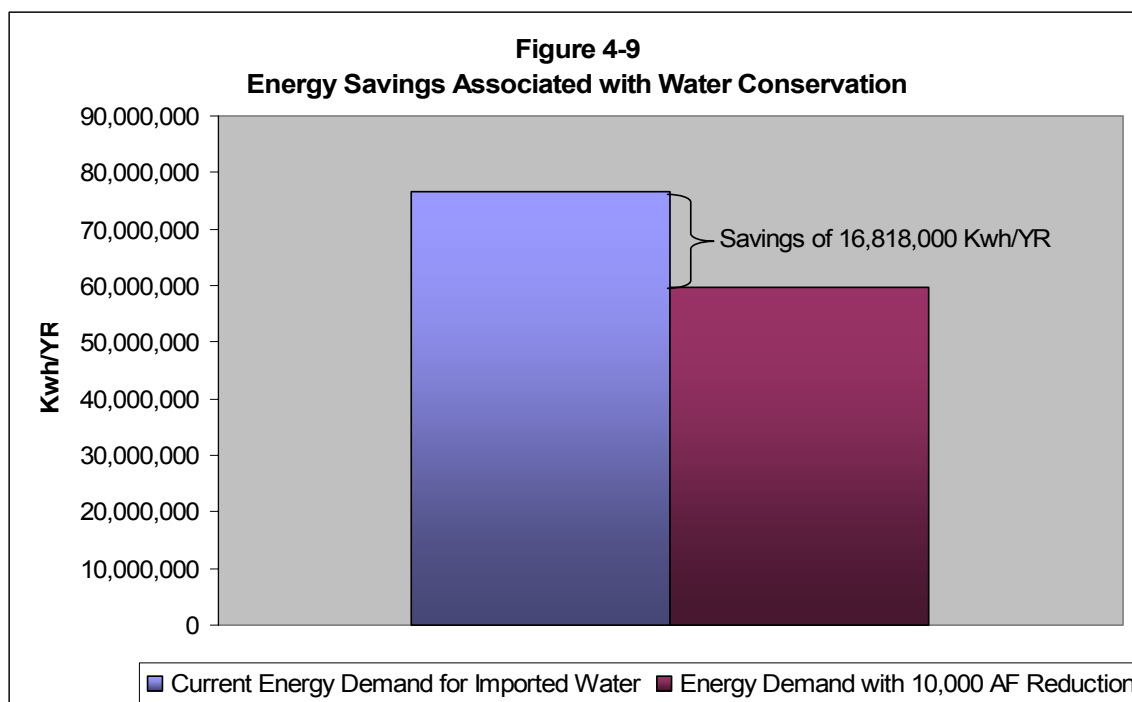
IEUA will investigate what type of incentives would be necessary to create a series of these rain catching gardens.

Regional Energy Benefits

Water and energy are like two sides of the same coin. They are linked together in almost every scenario. When water use increases, so does energy use. The artificial movement of water is the single greatest use of power in California. As energy becomes more expensive, the cost to move water from one place to another rises, and the need to conserve becomes even greater. When we reduce our water use, even by a small amount, we can reduce our costs for energy; we reduce demand on the regional grid system of energy supply, and reduce air pollution.

In 2003, the Pacific Institute for Studies in Development, Environment, and Security developed a model to show the multiple energy benefits of water conservation. Figure 4-9 provides a look at the energy savings that will occur when we reduce our water use through conservation. Using the model, we find that a reduction of 10,000 acre-feet per year of imported water will save almost 16.8 million kilowatt hours annually.

To put these energy savings into perspective, 16.8 million kilowatt hours is enough to meet the energy needs of about 1,650 average single-family homes for one year.



In addition to energy savings, there are measurable reductions in air pollution as well. For each 10,000 acre-foot reduction in imported water, the IEUA service area will:

- Reduce Carbon Dioxide emissions by 7.9 billion grams per year;
- Reduce Carbon Monoxide emissions by 3.5 million grams per year;
- Reduce Nitrogen Oxide emissions by 1.7 million grams per year;
- Reduce Sulfur Oxide emissions by 165,000 grams per year;
- Reduce Total Organic Gases by 1 million grams per year; and
- Reduce Total Particulates by 362,000 grams per year.

To put the above reductions into perspective, saving 10,000 acre-feet of imported water reduces emissions that are equivalent to taking up to 916 cars off the road.

4.7 ACTION PLAN

Below is a series of proposed actions that IEUA and the agencies of the Regional Water Conservation Partnership Workgroup will follow over the next five years to implement regional water conservation strategy.

- Develop existing and new conservation programs that assist the retail water agencies in complying with the Statewide Memorandum of Understanding (MOU) regarding Best Management Practices (BMP).
- Develop existing and new conservation programs that achieve a 10 percent reduction in annual water use over the next five years.
- Increase local conservation program revenues from \$400,000 to \$1 million by increasing the allocation of property taxes, increasing the funding level from the Regional Sewerage Fund, and increasing the imported water surcharge to \$8 per acre-foot over the next five years.
- Expand the IEUA staff sufficiently to meet the regional conservation program goals.
- Integrate existing and new conservation programs over the next five years into other resource management programs such as water recycling, healthy soils, and water quality.